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10/583,141	09/21/2006	Takayuki Kumakiri	Q95482	1800
23373 7590 08/15/2008 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				
EXAMINER SWINNEY, JENNIFER B				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,141

Applicant(s)

KUMAKIRI ET AL.

Examiner

JENNIFER SWINNEY

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-24 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 16 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-85/86)
Paper No(s)/Mail Date 21 September 2006
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Inventor's Patent Application
6) ☐ Other: _____

DETAILED ACTION

Specification

1. The use of the trademark HELI-SERT® and HELI-COIL® has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Objections

2. Claims 12-16 and 18-22 are objected to because of the following informalities: the terms "cutting tool" and "cutting insert holder" are used interchangeably in the claims of the application. The preamble of Claim 1 utilizes the term "a cutting insert holder," therefore the terminology should main consistent throughout the remainder of claims. If applicant prefers to utilize the term "cutting insert holder" to further limit the term "cutting tool," as in claim 12 of the application, applicant should revise claim 1 to state --A cutting tool comprising a cutting insert holder, a base made of plastic to which at least one cutting insert is fixed. -- Claims 2-11 and 17 would remain consistent with this modification and claims 12-16 and 18-22 would be modified to state --The cutting insert holder as claimed..." Appropriate correction is required.
3. Claims 22-24 are objected to because of the following informalities: the term "tool holder" is used in claims 22-24, which depends on claim 3, 4 and 5. There is no

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antecedent basis for the term "tool holder" in claim 3, 4 or 5. Claims 22-24 should depend on claim 14. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4,6,8,10-13,17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan Patent No. 7-024619 to Nakamura et al. (Nakamura) in view of US Patent No. 6,475,065 to Holmes et al. (Holmes).

In Reference to Claim 1

Nakamura teaches a cutting insert holder (Fig. 1), to which at least one cutting insert is fixed (chip, Figs. 2,5, 9) but does not teach a base made of a plastic.

Holmes teaches a base (Fig. 1) made of a plastic (Col. 3, lines 1-3).

It would have been obvious to one having ordinary skill in the art at the time of invention to construct the base of the cutting insert holder of Nakamura of a polymer as taught by Holmes. The polymer construction provides a diverse cutting tool, which can remove substrates from various materials. The polymer construction is also a lighter weight than the aluminum alloy construction, which allows for easier handling, increased versatility and a reduction in overall cost.

In Reference to Claim 2

Nakamura modified by Holmes teaches the cutting insert holder (Fig. 1, Nakamura) as claimed in claim 1 (see rejection of claim 1 above), wherein the base is made through injection molding (Col. 3, lines 46-47, Nakamura).

In Reference to Claim 3

Nakamura modified by Holmes teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 1 above (see rejection of claim 1 above), further comprising at least one adjusting member (cartridge, Fig. 2, 7, Nakamura) having a hole (Fig. 5, 13, Nakamura) and at least one metal female-screw member (Fig. 4, 15, Nakamura) which is fixedly embedded in the base (Fig. 4, 15 and Para 0015, Nakamura), the metal female-screw member (Fig. 4, 15, Nakamura) having a screw tap (Fig. 4, 15, Nakamura) for receiving a male screw (Fig. 4, 13 and Para 0015, Nakamura), whereby the cutting insert (chip, Figs. 2,5, 9) is fixed to the base by passing the male screw through the cutting insert and through the hole in the adjusting member and driving home the male screw into the screw tap (Fig. 5 and Para 0015, Nakamura). The following rejection was made in terms of the ordinary meaning of the term "clamp" and the term "screw."

In Reference to Claim 4

Nakamura modified by Holmes teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 1, further comprising at least one metal female-screw member (Fig. 4, 15, Nakamura) which is fixedly embedded in the base (Fig. 4, 15 and Para 0015, Nakamura), the metal female- screw member having a screw tap (Fig. 5 and Para 0015, Nakamura), a clamp screw (Fig. 5, 17, Nakamura) whereby the cutting insert (chip,

Figs. 2,5, 9, Nakamura) is fixed to the base by driving home the clamp screw (Fig. 5, 17, Nakamura) through a hole pierced in the cutting insert into the screw tap (Fig. 5).

In Reference to Claim 6

Nakamura modified by Holmes teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 3 (see rejection of claim 3 above), wherein the base (Fig. 4, 15 and Para 0015, Nakamura), and the female-screw member (Fig. 4, 15, Nakamura) but does not explicitly teach the base and female-screw members are formed integrally through insert molding. Nakamura inherently teaches base and the female-screw member are embedded in the body of the base (Para 0015) through injection molding. Injection molding is a well known process for embedding elements within a structure.

In Reference to Claim 8

Nakamura modified by Holmes teaches the cutting insert holder (Fig. 1, Nakamura) as claimed in claim 1 (see rejection of claim 1 above), wherein the cutting insert holder is used for a rotating cutting tool (Abstract, Nakamura).

In Reference to Claim 10

Nakamura modified by Holmes teaches the cutting insert holder (Fig. 1, Nakamura) as claimed in claim 1 (see rejection of claim 1 above), wherein the plastic is an amorphous plastic further comprising glass fibers (Col. 4, lines 37-42).

Nakamura modified by Holmes does not explicitly teach amorphous plastic including glass fibers from 30 wt% to 60 wt%. It would have been obvious to one having ordinary skill in the art at the time of invention to construct the cutting insert holder of an amorphous polymer with the specified range percentage of glass fibers to obtain the

necessary stiffness and physical properties for the cutting insert holder to perform successfully under the constraints of the cutting operation.

In Reference to Claim 11

Nakamura modified by Holmes teaches the cutting insert holder (Fig. 1, Nakamura), as claimed in claim 10 (see rejection of Claim 10), wherein the amorphous plastic is a polyetherimide resin (Col. 4, lines 31-34, Holmes).

The following rejections, Claims 12-24, were made on the best interpretation of the claimed subject matter.

In Reference to Claim 12

Nakamura modified by Holmes teaches a cutting tool (Fig. 1, 1, Nakamura) comprising the cutting insert holder (Fig. 1, Nakamura) as claimed in claim 1 (see rejection of claim 1 above) and at least one cutting insert (chip, Figs. 2,5, 9, Nakamura) secured to the cutting insert holder (Fig. 1).

In Reference to Claim 13

Nakamura modified by Holmes teaches a cutting tool (Fig. 1, 1, Nakamura) comprising the cutting insert holder (Fig. 1, Nakamura) as claimed in claim 3 (see rejection of claim 3 above), and at least one cutting insert wherein the cutting insert (chip, Figs. 2,5, 9, Nakamura) is secured to the adjusting member (cartridge, Fig. 2, 7, Nakamura) of the cutting insert holder (Fig. 2).

In Reference to Claim 17

Nakamura modified by Holmes teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 4 (see rejection of claim 4 above), wherein the base (Fig. 4, 15 and Para 0015, Nakamura) and the female-screw member (Fig. 4, 15, Nakamura) are formed integrally through insert molding (Para 0015).

In Reference to Claim 18

Nakamura modified by Holmes teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 3 (see rejection of claim 3 above) and at least one cutting insert (cartridge, Fig. 2, 7, Nakamura) secured to the cutting insert holder (Fig. 2, Nakamura).

In Reference to Claim 19

Nakamura modified by Holmes teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 4 (see rejection of claim 4 above) and at least one cutting insert cartridge, Fig. 2, 7, Nakamura) secured to the cutting insert holder (Fig. 2, Nakamura).

6. Claims 5,7, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan Patent No. 7-024619 to Nakamura et al. (Nakamura) in view of US Patent No. 6,475,065 to Holmes et al. (Holmes), as applied to claim 1 above, and further in view of Japan Patent No. 62-130113 to Yamazaki et al. (Yamazaki)

In Reference to Claim 5

Nakamura modified by Holmes teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 1 (see rejection of claim 1 above), but does not teach at least one adjusting member which is fixedly embedded in the base, the adjusting member having a screw tap for receiving a clamp screw, whereby the cutting insert is fixed to the base

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by driving home the clamp screw through a hole pierced in the cutting insert into the screw tap.

Yamazaki teaches at least one adjusting member (Fig. 3, 2, Specification) which is fixedly embedded in the base (Specification), the adjusting member (Fig. 3, 2, Specification) having a screw tap (Fig. 7) for receiving a clamp screw (Fig. 7, and Specification) whereby the cutting insert (Fig. 6) is fixed to the base by driving home the clamp screw (Fig. 7 and Specification) through a hole pierced in the cutting insert into the screw tap.

It would have been obvious to one having ordinary skill in the art at the time of invention to modify the base of the cutting insert holder of Nakamura by an injection molding process to embed the adjusting member in the base as taught by Yamazaki. Embedding the adjustment members reduces the weight of the base and prevents the cutting edge of the cutting insert from breaking as the tool is changed.

In Reference to Claim 7

Nakamura modified by Holmes in further view of Yamazaki teaches the cutting insert holder (Fig. 1, Nakamura) as claimed in claim 5 (see rejection of claim 5 above), wherein the base (Fig. 3, 1, Yamazaki) and the adjusting member (Fig. 3, 2, Yamazaki) are formed integrally through insert molding (Abstract, Yamazaki).

In Reference to Claim 20

Nakamura modified by Holmes and Yamazaki teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 5 (see rejection of claim 5 above) and at least

one cutting insert (Fig. 3, 3, Yamazaki) secured to the cutting insert holder. (Fig. 3, 1, Yamazaki).

In Reference to Claim 21

Nakamura modified by Holmes and Yamazaki teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 5 (see rejection of claim 5 above) and at least one cutting insert (Fig. 3, 3, Yamazaki) wherein the cutting insert is secured to the adjusting member (Fig. 3, 2, Yamazaki) of the cutting insert holder.

7. Claims 9, 14-16, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan Patent No. 7-024619 to Nakamura et al. (Nakamura) in view of US Patent No. 6,475,065 to Holmes et al. (Holmes) as applied to claim 1 above, and further in view of Japan Patent No. 62-92147 to Shimomura et al. (Shimomura).

In Reference to Claim 9

Nakamura modified by Holmes teach the cutting insert holder (Fig. 1, Nakamura) as claimed in claim 1 (see rejection of claim 1 above), but does not teach wherein the cutting insert holder is used for a throwaway cutting tool.

Shimomura teaches wherein the cutting insert holder (Fig. 1, 1, Shimomura) is used for a throwaway inserts of a cutting tool (Page 3, Para 4).

It would have been obvious to one having ordinary skill in the art at the time of invention to incorporate throw-away tips taught by Shimomura on the cutting insert holder of Nakamura. Throw-away tips are advantageous because after the cutting process to dispose of chip build up. It would have further been obvious to throw away the entire cutting tool after the cutting process to maintain cutting accuracy.

In Reference to Claim 14

Nakamura modified by Holmes teaches a cutting tool (Fig. 1, 1, Nakamura) comprising the cutting insert holder (Fig. 1, Nakamura) as claimed in claim 1 (see rejection of claim 1 above), but does not teach a tool holder to which the cutting insert holder is secured.

Shimomura teaches a tool holder (Fig. 2, 2, Shimomura) to which the cutting insert holder is secured (Fig. 2 and Page 4, Para 1).

It would have been obvious to one having ordinary skill in the art at the time of invention to secure the cutting insert holder of Nakamura to a tool holder by a key and screw combination as taught by Shimomura to adequately secure the cutting insert holder prior to placing it into the cutting process. It is well known to support cutting tools by tool holders which are often placed on indexing tools for machining, which creates a more efficient machining process.

In Reference to Claim 15

Nakamura modified by Holmes in further view of Shimomura teaches the cutting tool (Fig. 1, 1, Nakamura) as claimed in claim 14 (see rejection of Claim 14, above), wherein the cutting insert holder (Fig. 1, Nakamura) is secured to the tool holder by screw-driving a screw member (Fig. 2, 14, Shimomura).

In Reference to Claim 16

Nakamura modified by Holmes in further view of Shimomura teaches the cutting tool (Fig. 1, 1, Nakamura) as claimed in claim 14 (see rejection of claim 14 above), but does not teach wherein the cutting insert holder is secured to the tool holder by

hammering a pin (Fig. 2, 14, Shimomura). Shimomura teaches the tool holder is secured to the cutting inset holder by a fastening member. The attachment portion is not threaded, therefore it would have been obvious to utilize a screw, bolt, or a pin to secure the two members.

In Reference to Claim 22

Nakamura modified by Holmes and Shimomura teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 14 (see rejection of claim 14 above), and a tool holder (Fig. 2, 2, Shimomura) to which the cutting insert holder is secured (Fig. 2 and Page 4, Para 1).

In Reference to Claim 23

Nakamura modified by Holmes and Shimomura teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 14 (see rejection of claim 14 above), and a tool holder (Fig. 2, 2, Shimomura) to which the cutting insert holder is secured (Fig. 2 and Page 4, Para 1, Shimomura).

In Reference to Claim 24

Nakamura modified by Holmes and Shimomura teaches a cutting insert holder (Fig. 1, Nakamura) as claimed in claim 14 (see rejection of claim 14 above), and a tool holder (Fig. 2, 2, Shimomura) to which the cutting insert holder is secured (Fig. 2 and Page 4, Para 1, Shimomura).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent Application Publication No. 20030164579 teaches screws embedded in a body through injection molding. US Patent No. 6,231,274, US Patent No. 5,160,228 and US Patent No. 3,188,717 teach an attachable and detachable cutting inserts. US Patent No. 5,160,228
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER SWINNEY whose telephone number is (571)270-5843. The examiner can normally be reached on Monday-Friday, 7:30 am-5:00 pm EST.
10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Bomberg can be reached on (571)272-4922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JS/

August 13, 2008

/Fenn C Mathew/

Primary Examiner, Art Unit 3764